

## Commodity Briefs



Jack Harrison

## Field Crops

## Mother Nature Stirs Up Wheat Market

The wheat market has been on a wild ride this spring, with wheat prices rising sharply in mid-April following news of significant freeze damage in prime winter wheat growing areas in the Southern Plains, then partially falling back as crop prospects improved. The freeze curtailed what many observers thought would be blockbuster crops in Kansas, Oklahoma, and Texas. Excellent crop conditions in these states had pointed to a large boost in hard red winter wheat output from last year's drought-afflicted crop. Instead, USDA's first forecast of winter wheat production is up just 6 percent from 1996 to 1.56 billion bushels.

Also contributing to price fluctuation in recent months was delayed planting in the Northern Plains, where a large portion of the U.S. spring wheat crop is grown. Chilly temperatures, along with the extremely wet field conditions following spring storms and snowmelt, especially in the Red River Valley, slowed spring wheat planting in the region. Recent favorable weather has allowed farmers to catch up. As of May 25, farmers had planted 83 percent of the spring wheat crop, in line with the 5-year average.

With good planting conditions and warm weather, spring wheat plantings could increase from earlier expectations, offsetting the slow start to the planting season. Recent price strength in the wheat market may encourage spring wheat farmers in the Northern Plains to increase plantings. The first firm indication of spring wheat plantings will be published on June 30, in USDA's *Acreage* report. The first production forecast for spring wheat (based on surveyed yields and acreage) will be on July 11, 1997.

Assuming spring planting intentions (from USDA's *Prospective Plantings* released in March), as well as 5-year average yields and harvest-to-planted ratios for spring wheat, total U.S. wheat

production is forecast at 2.26 billion bushels in 1997, down 1 percent from last year. With larger beginning stocks and steady year-over-year imports, the U.S. wheat supply in 1997/98 is forecast to rise almost 3 percent. Ending stocks will build from last year. A rise in stocks relative to use is expected to pressure farm prices downward in the new marketing year that begins June 1. The season-average farm price of wheat is forecast at \$3.60–\$4.20 per bushel in 1997/98, down from \$4.35 in 1996/97 and \$4.55 in 1995/96.

Although the market has cooled since the freeze, prices are expected to be supported in 1997/98 by a moderately tight world situation. Combined production by the five major wheat exporters—the U.S.,

### U.S. Field Crops—Market Outlook

	Area		Yield	Output	Total supply	Domestic use	Exports	Ending stocks	Farm price	
	Planted	Harvested								
	—Mil acres—		Bu/acre	—Mil. bu—					\$/bu	
<b>Wheat</b>										
1996/97	75.6	62.9	36.3	2,282	2,748	1,298	985	465	4.35	
1997/98	69.2	61.0	37.1	2,261	2,817	1,260	1,000	557	3.60-4.20	
<b>Corn</b>										
1996/97	79.5	73.1	127.1	9,293	9,729	6,995	1,825	909	2.70-2.80	
1997/98	81.4	75.1	131.0	9,840	10,759	7,360	2,050	1,349	2.25-2.65	
<b>Sorghum</b>										
1996/97	13.2	11.9	67.5	803	821	550	215	56	2.30-2.40	
1997/98	10.9	9.8	67.6	665	721	424	200	97	2.00-2.40	
<b>Barley</b>										
1996/97	7.2	6.8	58.5	397	531	407	35	89	2.77	
1997/98	7.0	6.6	59.7	395	524	417	35	72	2.10-2.50	
<b>Oats</b>										
1996/97	4.7	2.7	57.8	155	322	245	3	74	1.95	
1997/98	5.3	3.2	58.0	187	361	280	3	78	1.40-1.80	
<b>Soybeans</b>										
1996/97	64.2	63.4	37.6	2,382	2,576	1,556	895	125	7.35	
1997/98	68.8	67.5	38.5	2,600	2,730	1,580	890	260	5.50-7.00	
<b>Rice</b>										
			Lbs./acre		—Mil. cwt(rough equiv.)—					\$/cwt
1996/97	2.82	2.80	6,121	171.3	206.9	104.7	78.0	24.2	9.85-10.05	
1997/98	2.88	2.82	5,762	162.5	199.2	106.6	71.0	21.6	9.75-10.75	
<b>Cotton</b>										
			Lbs./acre		—Mil. bales—					c/lb.
1996/97	14.6	12.9	707	18.9	22.0	10.9	7.0	4.1	69.50	
1997/98	14.5	13.3	670	18.5	22.6	11.0	7.3	4.3	*	

Based on May 12, 1997 *World Agricultural Supply and Demand Estimates*.

\*USDA is prohibited from publishing cotton price projections.

See table 17 for complete definition of terms and data for prior years.

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Canada, the European Union, Australia, and Argentina—is projected to drop 6 percent. While gains elsewhere in the world nearly offset the decline for major exporters, ending stocks for the world will remain relatively low.

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### Livestock, Dairy & Poultry

## Hog Disease in Taiwan Affects U.S. Pork & Corn Exports

The recent outbreak of foot and mouth disease (FMD) in Taiwan, which resulted in a ban on imports of Taiwanese pork by several countries, has focused world attention on Taiwan's pork industry. Pork dominates both meat production and consumption in Taiwan.

Before the FMD outbreak in early 1997, hogs were Taiwan's most important agricultural commodity, accounting for 29 percent of the value of livestock and crop production, and since the late 1980's the leading agricultural export commodity. Before the recent FMD bans, Taiwan was expected to export 360,000 metric tons of pork this year—28 percent of production.

For centuries hog production was an integral part of farming in Taiwan, absorbing family labor, waste foods, farm byproducts, and other surplus resources, and in return, providing supplemental cash income and manure for enriching the soil. Since the late 1960's, Taiwan's hog indus-

### World Commodity Market Outlook

	Year	Production <sup>1</sup>	Exports <sup>2</sup>	Consumption <sup>1,3</sup>	Carryover <sup>1</sup>
<i>Million tons</i>					
Wheat	1996/97	581.2	113.0	577.1	109.3
	1997/98	578.4	110.8	572.4	115.3
Corn	1996/97	588.8	68.0	570.2	84.6
	1997/98	598.5	71.7	591.3	91.8
Barley	1996/97	153.2	15.2	149.1	23.0
	1997/98	148.1	15.5	151.1	20.1
Rice	1996/97	377.4	18.5	375.8	51.8
	1997/98	377.3	18.5	377.5	51.7
Oilseeds <sup>4</sup>	1996/97	257.8	45.4	216.7	17.5
	1997/98	273.0	NA	NA	NA
Soybeans <sup>4</sup>	1996/97	132.5	34.9	114.7	14.2
	1997/98	NA	NA	NA	NA
Soybean meal <sup>4</sup>	1996/97	91.0	32.7	91.3	3.3
	1997/98	NA	NA	NA	NA
Soybean oil <sup>4</sup>	1996/97	20.4	5.9	20.5	2.2
	1997/98	NA	NA	NA	NA
<i>Million bales</i>					
Cotton	1996/97	88.0	26.7	86.4	37.5
	1997/98	87.5	27.2	88.5	36.5

NA = Not available.

1. Aggregate of local marketing years. 2. Wheat, July-June; coarse grains, October-September; cotton, August-July. Rice trade is for the second calendar year. All trade includes trade among countries of the former Soviet Union. All grain trade excludes intra-EU trade; oilseed and cotton trade include intra-EU trade. 3. Crush only for soybeans and oilseeds. 4. Brazil and Argentina adjusted to October-September.

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try has undergone dramatic changes similar to those in the U.S. hog industry.

In 1960, about 94 percent of Taiwan's farms raised hogs, but with an average of only four head per farm. By 1995, only 3 percent of Taiwanese farms raised hogs, but the per-farm average had increased to 402 head. Although about two-thirds of Taiwan's hog operations had less than 200 head, larger farms with herds of over 1,000 head accounted for 57 percent of the total inventory—close to the 61 percent of inventory held in the U.S. by operations of that size.

This rapid growth (about 600 percent from 1960 to 1995) and accompanying structural transformation in the hog industry have brought significant changes in procurement of inputs by hog producers,

particularly feed. Rather than supplying their own feed, most producers have shifted to purchasing nutrient and formula feeds, of which imported coarse grains and soybeans are key ingredients. Currently, Taiwan produces only about 5 percent of its coarse grain requirements and less than 1 percent of its soybean needs. As a result, Taiwan has become a major market for feedstuffs.

Hogs account for most of the country's feed needs, with poultry a distant second. Corn is the dominant feed grain, and most corn—95 percent—is imported. Corn imports increased fourfold in the 1970's, then doubled during the 1980's. By the early 1990's, Taiwan's corn imports surpassed 5 million tons, hitting a record 6.3 million in the 1994/95 marketing year.

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### The Nature of Foot & Mouth Disease

Foot and mouth disease (FMD) is highly contagious, affecting primarily cloven-hoofed animals (e.g., cattle, sheep, goats, hogs). The disease is characterized by the formation of blisters on the tongue, lips, cheeks, palate, and other tissues of the mouth (reducing appetite and hindering food conversion), and on the skin above the claws of the feet. The cause is a virus, which can be found in the blood and other bodily secretions, such as saliva, milk, and urine. The virus can be spread by many different carriers, including humans, flies, ticks, most meat products, manure, semen, feeds, water, and soil. Although deaths of adult animals from FMD are not ordinarily high, the infected animals are usually destroyed.

To avoid infecting their own herds, nations ban imports of live cloven-hoofed animals, and fresh, chilled, and frozen meats of those animals, from areas experiencing outbreaks of FMD. Under these bans, only canned and cured meats from susceptible animals may be imported from FMD-affected countries. Loss of fresh and chilled meat markets causes economic losses for countries where outbreaks occur.

The U.S. is the leading supplier of coarse grain (mostly corn) and soybeans to Taiwan, with market shares of over 90 percent for both commodities. In 1996, the U.S. exported 5.8 million tons of coarse grain and 2.6 million tons of soybeans to Taiwan, each accounting for about a tenth of total U.S. exports of those commodities. U.S. corn exports to Taiwan have averaged 212 million bushels per year in the 1990's, reaching 234 million bushels for the 1995/96 marketing year.

Growth in the hog industry has made Taiwan a major pork exporting country, with virtually all exports going to Japan. Exports of slaughter hogs began in the 1950's, but Taiwan remained a small exporter through the 1970's. After an outbreak of FMD in Denmark in 1982, Taiwan made large gains in the Japanese pork market, becoming the leading supplier with a 46-percent market share.

Taiwan's export situation is complicated because of intense competition and different marketing strategies among the many suppliers in Japan's lucrative pork market—2.05 billion pounds of pork imports, fresh and chilled, in 1996. Taiwan supplies all six parts of the hog carcass—butt, picnic, loin, tenderloin, belly, and ham—while the U.S. is primarily a supplier of major parts products like loins.

Taiwan has achieved growth in market share by becoming increasingly sophisticated in meeting Japanese consumer specifications. For example, some Japanese consumers have demonstrated a preference for Taiwanese pork, which tends to have a darker color and a sweeter taste compared with U.S. pork. Improved technology has also helped the Taiwanese to increase exports of higher valued fresh and chilled products. During 1978-84, fresh and chilled products accounted for only 8 percent of Taiwan's total pork exports. By 1992-95, these products accounted for about a third.

Because of recent declines in Japanese pork production, fresh and chilled imports have increasingly substituted for domestic pork in Japan's retail markets. Taiwan's geographic advantage has contributed to its dominance in supplying fresh and chilled products to Japan. However, the U.S. has been catching up by using improved technology and providing specific cuts for the Japanese table market. In 1996, Taiwan and the U.S. each supplied about half of Japan's 162,000-metric-ton fresh and chilled pork import market.

By March 20, Taiwan had already exported 88 million pounds (carcass weight) of the 794 million pounds it had been expected to ship to Japan in 1997. The imposition of bans on Taiwanese pork

resulting from the FMD outbreak has left a "gap" of approximately 705 million pounds in Japanese pork imports—roughly 235 million pounds of fresh and chilled, and 470 million pounds of frozen pork, based on Taiwan's recent export shares. USDA estimates that higher pork prices in Japan, Japanese food safety concerns, and possibilities for substitution will likely reduce fresh pork imports by 10 percent and frozen pork imports by approximately 30 percent. Thus, total Japanese imports for 1997 could be around 1.8 billion pounds, down 8 percent from the nearly 2 billion pounds forecast earlier this year.

Expectations are that the U.S. will gain up to 90 percent of the post-FMD 1997 *fresh* pork market in Japan, or up to 557 million pounds. Canada and Korea should account for most of the balance. The U.S. is expected to take a 20-percent share of the *frozen* market, or about 241 million pounds, with Denmark expected to take almost 50 percent and Canada and Korea sharing most of the remainder.

The impact of FMD is likely to be felt most in 1997; FMD-free producing countries are expected to increase supplies enough to stabilize prices in 1998. Taiwan's pork industry should re-emerge with larger, more coordinated production and processing units, but the industry is not expected to recover its full pre-FMD share of the Japanese market. Pork suppliers in competing countries will likely forge relationships that will permanently capture market share. The U.S., in particular, should gain market share for fresh and chilled pork.

Even before the outbreak of FMD, several factors challenged the future growth of the hog industry in Taiwan. With virtually all exports going to Japan, the industry was vulnerable to fluctuations in the Japanese pork market. Moreover, after three decades of rapid growth, the industry was faced with high land costs and labor shortages, as well as increasing domestic environmental concerns brought on by densely packed hog farms and years of environmental neglect. In addition, demand has been mounting from Taiwan's trading partners for agricultural trade

## U.S. Livestock and Poultry Products—Market Outlook

		Beginning stocks	Production	Imports	Total supply	Exports	Ending stocks	Consumption		Primary market price
								Total	Per capita	
<i>Million lbs.</i>										
Beef	1997	377	25,293	2,330	28,000	1,910	375	25,715	66.7	66-69
	1998	375	24,906	2,400	27,681	2,140	350	25,191	64.7	70-76
Pork	1997	366	17,126	595	18,087	1,355	380	16,352	47.3	56-58
	1998	380	18,357	605	19,342	1,580	380	17,382	49.9	53-57
<i>c/lb.</i>										
Broilers*	1997	641	27,199	3	27,843	4,835	700	22,308	72.3	59-62
	1998	700	28,953	3	29,656	5,025	750	23,881	76.7	58-63
Turkeys	1997	328	5,444	1	5,773	479	350	4,943	18.4	65-68
	1998	350	5,680	1	6,031	485	325	5,220	19.3	62-67
<i>Million doz.</i>										
Eggs**	1997	8.5	6,531.7	5.0	6,545.2	263.0	12.0	5,369.9	240.4	80-84
	1998	12.0	6,705.0	4.0	6,721.0	266.0	10.0	5,505.0	244.3	72-78

Based on May 12, 1997 *World Agricultural Supply and Demand Estimates*.

\*Cold storage stocks previously classified as "other chicken" are now included with broiler stocks. \*\*Total consumption does not include eggs used for hatching. See tables 10 and 11 for complete definition of terms.

Economic Research Service, USDA

liberalization before allowing Taiwan to join the World Trade Organization. Large commercial operations have benefited from trade barriers against pork imports. Liberalization would likely open up Taiwan's pork market to outside suppliers.

Taiwan is a critical corn market for the U.S., and the effect of the FMD outbreak on Taiwan's corn imports is a U.S. concern. The FMD crisis in Taiwan will mean some reduction in U.S. corn exports, but will be partially offset by increased domestic feed use as U.S. hog production increases to fill part of the export gap left by Taiwan. Timing of the outbreak is also limiting its impact on Taiwan's 1996/97 corn imports—half of the trade year (October-September) was complete before the problem developed.

USDA's forecast of Taiwan's corn imports for 1996/97, originally set at 6 million tons before the crisis, currently stands at 5.5 million. Despite the lower forecast—equivalent to 20 million bushels—Taiwan would still be the world's third-largest importer this year, behind Japan and South Korea.

Although Taiwan has canceled or delayed some corn shipments, it has continued to make new purchases for future delivery. Domestic pork consumption is high in Taiwan, and even with some FMD-related decline should remain strong enough in the 1997/98 marketing year to keep feed needs relatively high. Nevertheless, the trade impact is expected to be more apparent in 1997/98. USDA is projecting Taiwan's 1997/98 corn imports at 4.5 million tons, the lowest since 1988/89, and down 22 percent from the 1993-95 average of 5.8 million tons.

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## Specialty Crops

### Food Safety Concerns for U.S. Fruits & Vegetables

With growing awareness of food safety issues, the U.S. fruit and vegetable industry, consumer organizations, and government are reviewing various options to reduce the risks of foodborne illness from produce. One option for reducing risks is the adoption of a hazard analysis and critical control point (HACCP) system. Under HACCP, firms at various levels of the production and marketing chain examine their operations and identify food safety hazards and the specific steps or points that pose the greatest potential health risks. The firms then establish critical hazard limits, and procedures for monitoring and corrective action to ensure pathogen control.

Foodborne pathogens, mainly bacteria, parasites and viruses, can cause acute and chronic illnesses ranging from mild

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digestive problems to serious food poisoning, kidney failure, or even death. Food safety concerns regarding fruits and vegetables have been enhanced by recent highly publicized outbreaks of foodborne illness, such as the *hepatitis A* virus among schoolchildren in Michigan earlier this spring which was traced to frozen strawberries served in school lunches. An outbreak on the west coast last fall, involving the bacteria *E. coli* in unpasteurized apple juice, resulted in over 60 illnesses and one death. Recently passed laws require the U.S. meat, poultry, and seafood industries to adopt HACCP over the next several years (AO May 1996, July 1996).

If regulations are adopted by the produce industry, HACCP could change operating procedures at several levels in the fruit and vegetable production and marketing chain—in the field, packinghouse, processing plant, and in food-service and retail environments. But the initial focus would likely be on points where fruits and vegetables come into contact with soil (and hence, potential harmful bacteria) during production or harvesting. Also of concern are foodborne viruses, such as *hepatitis A*, which are usually a result of contamination by contact with an infected food handler or water or sludge contaminated with sewage. Under HACCP, imported fruits and vegetables, a substantial portion of which are supplied during the off-season, could also be required to meet some equivalent type of food safety monitoring.

Although contamination of produce can occur all along the marketing channel, it can often be traced to contact with soil and/or animal-manure fertilizer at harvest or at the packinghouse. While most fruits are normally harvested by hand and do not come into direct contact with soil, workers may scoop up fruit that has dropped to the ground before or during harvest. Animal-manure fertilizer has been cited as a source of bacterial contamination in unpasteurized apple juice and cider. Cider, considered the least profitable use for apples, is often made from fruit that has dropped from trees naturally.

Packinghouse operators (fresh market) and processors commonly rely on water

flotation baths to receive fruit. Fruit that has inadvertently been contaminated at harvest can pass through the system and potentially contaminate other fruit if the bathwater is not sterilized and is used to receive subsequent loads. Adding chlorine to water for sanitation and/or filtering the produce bathwater are techniques that reduce the risk of cross-contamination.

Some fruits and vegetables, before going to the fresh market, are given a cold-water shower or drench to remove field heat and thereby reduce perishability. Vegetables that may receive this cooling treatment include green beans, spinach, and carrots. The water used for cooling is often recycled to save on refrigeration costs, which can raise the risk of cross-contamination if previously rinsed produce was contaminated during harvest. Water sanitation procedures (e.g., chlorinated water) can lower the risk of contamination by pathogens for most shower-drenched vegetable products.

Some fresh-market fruits and vegetables, such as strawberries, raspberries, blueberries, grapes, melons, sweet corn, lettuce, broccoli, and cauliflower, are often packed in the field during harvest. Because field packing does not typically involve rinsing or washing produce before shipping to market, there is risk of contaminants reaching the consumer. As with most fresh produce, careful harvesting methods and washing can minimize product damage as well as contamination.

Improper treatment during marketing can also promote contamination of fresh fruits and vegetables. In the late 1980's, an outbreak of foodborne illness was traced to Texas-grown melons which had been cut and stored improperly on salad bars. Melons are naturally in contact with soil until the time of harvest. The restaurants' temperature and the melons' high sugar content encouraged high bacterial growth. The result was an outbreak of *salmonella* poisoning in several southern states. Careful washing of the melons before cutting is a critical control point for pathogen control.

The overall impact of HACCP on the fresh fruit and vegetable industries would

depend on the extent of any regulations or voluntary HACCP program adopted by firms. For many farm and packinghouse operations, standardized product testing and documentation are likely the biggest changes that HACCP would introduce. However, regulations could also require produce washing and/or water sanitation at packinghouse and/or field packing operations. In the case of field packing operations that do not already wash produce, such a requirement could add considerable cost, which would likely be reflected in retail prices for those products.

HACCP would probably affect the processing industry less than the fresh produce and nonpasteurized juice industries. Pathogen control is less of an issue in much of the processing sector because product sterilization is already part of the production process to preserve quality and reduce risks of foodborne diseases.

Fresh-cut produce—a rapidly growing segment of the fruit and vegetable market—has received considerable food safety attention. Fresh-cut produce includes salad vegetables like broccoli, cabbage, cauliflower, carrots, and lettuce, and fruit such as oranges, grapefruit, and melons. Because these items are considered to be a “ready to eat” product, consumers are less likely to wash the produce. Proper sanitation during preparation (at centralized distribution warehouses, food-service establishments, and produce departments of retail food stores), along with adequate refrigeration to prevent bacterial growth, reduces foodborne safety risks.

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